If the train of apparatus to be set up is too long for the room available, some of it may be put outside the laboratory. There is no question of cold and heat to be taken into account and during most of the year all that is needed is protection from the sun. There is always the advantage of good light and air and freedom from soot and dirt. Laboratory work is practically out-of-door work. There is no heating system, and no frozen pipes to be dreaded.

J. C. WITT

CHICAGO, SEPTEMBER 10, 1921

CHARLES HENRY DAVIS 2ND

CHARLES HENRY DAVIS 2ND, Rear Admiral, retired, U. S. Navy, who was twice Superintendent of the Naval Observatory, died at Washington, D. C., December 27, 1921.

He was born in Cambridge, Mass., August 28, 1845, the son of Charles Henry Davis and Harriette Blake Mills.

Admiral Davis graduated from the Naval Academy in 1864. From 1875 till 1885 he was engaged principally in astronomical work, at first in the Naval Observatory at Washington, in the Department of Chronometers, and then in expeditions for the determination of longitudes by means of the submarine cables. Also, the latitudes of many stations were determined by Talcott's Method.

In No. 6, Navy Scientific Papers, published by the Bureau of Navigation, are given the investigations by Davis of Chronometer Rates as affected by Temperature and other Causes. The results of the longitude expeditions are presented in three publications of the Navy Hydrographic Office: with Lieutenant-Commander Francis M. Green and Lieutenant J. A. Norris "Telegraphic Determination of Longitudes, embracing the Meridians of Lisbon, Madeira, Porto Grande, Para, Pernambuco, Bahia, Rio de Janeiro, Montevideo, and Buenos Aires, with the latitudes of the Several Stations"; also with Lieutenant-Commander Green, and Lieutenant Norris, "Telegraphic Determination of Longitudes in Japan, China, and the East Indies, embracing the meridians of Yokohama, Nagasaki, Vladivostok, Shanghai, Amoy, Hong-Kong, Manila, Cape St. James, Singapore, Batavia, and Madras, with the latitude of the several Stations"; with Lieutenants Nornis and Laird, "Telegraphic Determination of Longitudes in Mexico and Central America and on the West Coast of South America, embracing the meridians of Vera Cruz, Guatemala, La Libertad, Paita, Lima, Anca, Valparaiso, and the Argentine National Observatory at Cordoba, with the Latitudes of the Several Sea-Coast Stations."

Davis as a Captain was Superintendent of the Naval Observatory from July, 1897, to April, 1898, leaving the Observatory to command the Dixie in the Spanish War. He returned to the Observatory in November, 1898, and remained on duty there as Superintendent until November, 1902. As Superintendent, Captain Davis took an active and successful part in the completion of the equipment of the New Naval Observatory and in formulating plans for the work to be carried on.

In 1904 Davis was made a Rear Admiral, and in 1904 and 1905 he was the U. S. representative on the international commission of inquiry on the North Sea incident which sat in Paris.

After service at sea as Squadron Commander, Admiral Davis was retired August 28, 1907. He continued to be interested in astronomy after his retirement, by reason of his achievements in science and because of his long service at the Naval Observatory.

His father, also a Rear Admiral, had twice been Superintendent of the Observatory and had established the Nautical Almanac Office.

SCIENTIFIC EVENTS

BRITISH SCIENTIFIC INSTRUMENTS[1]

THE exhibition of British scientific instruments held under the auspices of the Physical Society and the Optical Society at the Imperial College of Science and Technology, of which a description was given in our columns last week, is a timely reminder of the importance of scientific instruments in the national economy. Modern civilization is based, and must be increasingly dependent, on the extension of

[1] From Nature.

scientific knowledge and its applications to industry; and in these developments scientific instruments are an essential and predominant factor.

Of the part played by scientific instruments in the advancement of scientific knowledge there is no need to speak. The laboratories of the universities and kindred institutions where scientific research is prosecuted would be disabled were they without scientific instruments of the highest trustworthiness and precision. The variety and extent of the industrial purposes served by scientific instruments are so great that there is probably no important industry in the country which is not dependent on scientific instruments of one kind or another for the performance of its productive functions. Moreover, the field of application of scientific instruments is constantly widening; the uses of the microscope in the textile and steel industries, of the polarimeter in the sugar and essential oil industries, of the pyrometer in the metallurgical industry, and of X-rays in the iron and steel industries, are but a few of the many examples that could be cited to illustrate the invasion of scientific instruments into fields of industry in which they were at one time unknown. That the industries gain in sureness and accuracy and in a deeper and wider knowledge of the fundamental scientific principles involved is obvious. And the process continues and must continue. Tomorrow new instruments will be devised and new uses found for old instruments.

Moreover, as was stated in the leading article published in NATURE of February 10, 1921, the scientific instrument industry, springing directly from the loins of science, and progressing as scientific knowledge widens, is one of the most highly skilled industries we have. Its expansion means a definite increase in the numbers of academic and technical scientific workers and of the most highly skilled artisans; and the national wealth, in any comprehensive conception of the term, must be enlarged by the increase of the numbers of such educated and skilled classes.

For these and other reasons a flourishing and efficient scientific instrument industry is vital to the nation, whether in peace or war. And, although it is obvious that the users of scientific instruments, whether in the industrial or academic domain, must not be prejudiced or hampered by being unable to obtain the best instruments, from whatever source, it would be a disaster of the first magnitude if British scientific instruments should not be produced equal to the best that the world has to offer.

AN ENGLISH JOURNAL OF SCIENTIFIC INSTRUMENTS[1]

NATURE may be continuous and the divisions of time and space no more than artificial articulations devised to suit the human intellect. Nevertheless, physical science is based on measurement, and proceeds only by the use of selected units of time, space, quantity, and so forth. Every new branch of science leads to the creation of a new set of units, and according to the latest theory it would appear that energy itself is most conveniently regarded as divided into "quanta"—measurable and related units. Many of the most illuminating advances in theory and actual discoveries of fact have come about by more refined methods of weighing and measuring. By these, argon, radium, and many new elements have been isolated and identified; by these the structure of the atom and the new alchemy which transmutes one element into another have been revealed. In every laboratory a new research implies the devising of new apparatus or the detection of deficiencies in existing apparatus. The literature in which such advances in technical methods are published is scattered all over the civilized world. It is written in many languages and at present there is no adequate system of indexing or recording it. Doubtless the patent offices contain sufficient descriptions of improvements with actual or possible commercial value; but even this field is so vast that applicants have to employ special agents before they can guess if their claims are novel. But for a large proportion of the methods devised in the prosecution of research patents are neither sought nor desired. Sir Richard Glaze-

[1] From the London Times.